

"Dedicated to Public Service"

THE RADIATOR



W6RHC
IRL #8170
Echolink #322788



<http://www.gearsw6rhc.org>

P.O.Box 508 Chico, CA 95927-0508

Founded: August 13 1939

May, 2015

Coming Events

O.A.R.S. GENERAL MEETING

Second Friday, every month, at 7:00 p.m., at St. Paul's Church Parrish Hall, 1430 Pine St., Oroville

G.A.R.S. Second Wednesday, each month, General Meeting, Lutheran Church Hall, Artois; 7:00

G.E.A.R.S General Meeting, third Friday each month, at Butte County Search and Rescue Building, Chico. Doors open at 6:00 p.m.

Butte A.R.E.S. MEET: fourth Friday, monthly, at Butte County Search and Rescue Building.

FCC EXAMS - GEARS VEC

First Sunday of every even numbered month.

At the Butte County Search and Rescue Building. Written test at 2:00 p.m. For information or pre-registration call Tom Rider -W6JS; 530-893-9211

Club Events:

News and items of interest
GEARS Calendar...all inside.

Website: www.gearsw6rhc.org



Picture courtesy EVARC

The Prez' Says:

April is over and done and so is the Wildflower for another year. No major accidents, no hyperthermia like last year, just a lot of flat tires. I sat and watched a father fix his son's flat in about eight minutes. Boy, that's sure faster than I could do my old fat tired bike when I ran over puncture vines when I was a kid.. Of course then our bike had one speed-as fast as you could pedal. I felt like a really special kid when I got a new bike with hand brakes before I went away to college at UC Davis. We have a final meeting for debriefing on Wednesday afternoon at Duffy's Tavern. You are welcome to attend if you want to put up with the hype. I DO have everyone's bright orange T-shirts. I will have them at the May meeting, if you haven't gotten yours yet.

Next on the agenda is the AUCTION. The May meeting is our yearly auction so club members can clear out the shelves of unneeded items. Look in the closet, behind the bench and in the cabinets. Don't forget to look in the garage on that bench in the back where you build projects. Anything you no longer need may be just what another ham has been looking for. If you want to sell off equipment or supplies and pocket the income, remember that GEARS will collect 10% for handling. Or you can donate that income to the club coffers and be much appreciated. The only thing to remember-if you brought it and it doesn't get sold, you must take it home with you or find someone to "adopt" whatever it is. (Chuck used to bring home boxes of real good stuff that was left over every year from the auction, I'm still going through some of those boxes.) The May meeting is on the 15th; mark your calendar and come see what your friends have dug up.

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Board of Directors Meeting: Apr 17 2015

ATTENDANCE All officers present.

Board of Directors meeting will be held at 6 pm in the future.

MEMBERSHIP APPLICATIONS:

OLD BUSINESS:

Upcoming major expenses liability insurance.

NEW BUSINESS:

Gene training classes: No trainees yet.

IRLP: Still having problems with IRLP after the power outage. We do have the password and login.

Field Day: Field Day will be at Platt Mt. this year.

The treasurer has requested that as of 1 Jan 2015 we go with what have in the bank as it will be impossible to reconstruct records for the last few years.

We wish to thank Michael Favor for his work on the new light at the repeater shack.

ADJOURNMENT: 18:38
hr.

Dale Anderson,
Secretary



MINUTES OF GENERAL MEETING for Apr 17 2015

PROGRAM: Why did you become a Ham Operator.

ATTENDANCE: All officers present.

ANNOUNCEMENT:

Ron Osborn of O.A.R.S. will be auctioning an MFJ-269c analyzer with all the bells and whistles. Battery and battery eliminator not included.

VEC: None.

MINUTES: Approved the minutes from Mar meeting.

TREASURER:

Report was accepted.

OLD BUSINESS:

Still waiting for parts for the home brew buddypole.

NEW BUSINESS:

Field Day location this year will be at Platt Mountain.

Wildflower will be operating on 145.290 pl - 110.9 using T-SQL not tone. Sheriff Com Reserve will be net control at the fairgrounds. Tactical call sign will be used, your location followed by your call sign.

Make sure Anna has your t-shirt size.

Next month is the auction month.

ADJOURNMENT: 20:49 hr.

Dale Anderson,
Secretary



May 15, 2015
6:00 p.m.!!!!!!



BRING YOUR EXCESS HAM RADIO STUFF & SELL AT THE AUCTION!

MAY 15

Doors are open at 6:00 p.m. So come early to set up ! Rules are: If you bring it and it does not sell-you take it home. It would be nice if you place a note on the item stating it is operational..or not. As in past auctions, you may donate outright, or place a minimum bid amount & the club receives 10% of the final sale amount.

Can't make it on the 15th, but want to sell/donate items?

Contact: WA6ZRT
Gene Wright
345 3515



VEC TESTING

2:00 p.m.

June 7, 2015

August 2, 2015



Caps embroidered with your name and your call sign may be ordered by contacting WA6ZRT -Gene Telephone #530 -345-3515

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Tom Rider-W6JS
530-893-9211
Rustyboy rider@aol.com

GEARS MEMBER OF THE MONTH—STAN McETCHIN, WB6KDZ**BY Michael Favor-N6FAV**

At 90 years old, Stan McEtchin, WB6KDZ, is one of GEARS most senior members, and a generally fascinating guy. Stan is not just an Extra-class ham, but also a decorated WW2 special-forces veteran, an accomplished mechanical engineer and inventor, an expert welder and machinist, and a metal-sculpture artist.

Stan's two sons and his daughter are all in their sixties. One son is a doctor, the other son is an engineer, and his daughter is a devoted Jehovah's Witness. Stan has been married four times, and he said he and his charming fourth wife, Eileen, are still getting to know each other. I asked how long they had been married. Stan said, "35 years".

When he was six years old, Stan's mother and father sent him to live with his grandmother in Canada. His folks put him on the bus in California by himself, and asked the bus driver to keep an eye on him until he arrived in Vancouver. A short time later, his parents also gave up his younger brother for adoption. Stan's mother later went on to become a best-selling author of over a dozen children's books.

Stan was always creative and innovative, even as a child. Living near the water, Stan and his friends often built their own boats. Stan wanted to build a boat with gentle curves and graceful lines, so he set up a big wooden water tank with a fire under it as a boiler in his grandmother's back yard. This allowed him to soften the wooden boards with the hot steam to make them flexible enough to build the kind of boat he had in mind. The neighbors thought he was a bit unusual. None of the other kids were doing that in their backyards.

Stan and the kids were always trying to find ways to earn a little money, so they collected empty bottles and any old scrap metal they could find. Down at the docks, one of the kids noticed a lot of valuable copper wire and old pieces of pipe that had been thrown overboard by men working on boats. It was just lying there on the bottom, about fifteen or twenty feet under the water. Stan doesn't remember exactly whose idea it was, but they devised a crude underwater diving helmet, by cutting the bottom out of an empty four-gallon oil can. One kid would stand on the dock and operate a hand-pump connected to an air hose, Stan went under water, down to the bottom of the bay, to pick up the scraps of metal. He said he would have to sort of feel around for the scraps. You couldn't really look down to see what you were doing, because you had to keep your head straight upright as much as possible, to keep air from pouring out and the water from pouring in. He would put the pieces of metal in a basket with a rope tied to it, and another kid would haul them up to the surface.

Later in the summer, a lot of the kids got jobs picking hops at a local farm. Since they were getting paid by the pound, some of the kids would add a little extra weight, whenever nature would allow, by peeing on the baskets of damp hops before they put them on the scale. There is no proof that had any effect on the taste of the beer.

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Once Stan finished the sixth grade, his grandmother told him it was time to get a real job. Stan found work at a local roof-shingle factory. He ran the boiler that melted the tar. He wasn't greatly inspired by it. In 1930's any job was a good job. He made 50 cents per day, which helped support his family.

Around this time Stan started getting interested in ham radio. He built his own ham receiver out of parts from old car radios. When his receiver locked onto a signal, the regenerative circuit design re-transmitted a small signal on the same frequency. He sometimes heard hams as far away as Seattle complain about the interference his radio caused when he listened to the frequency they were using.

When Stan was around 16, he wanted to get a job at the shipyard as a welder, but he didn't know how to weld, and nobody would teach him. So he went down to the shipyard very early every morning, before anybody else was there, and practiced welding for hours. He quickly taught himself to be a very good welder, and got the job.

When the Japanese bombed Pearl Harbor, and Uncle Sam asked for volunteers, Stan tried to sign up. They wouldn't take him, because he was only 17. But many of the men from the shipyard did join the army, and Stan was left behind to teach welding to a whole new crew of workers, mostly women. One day when he got home, his grandmother asked him about his day at work. He said he had been teaching a bunch of "older women" how to weld. His grandmother asked "How old are these older women?" Stan said, "A lot of them are over twenty."

When he turned 18, Stan volunteered to join a combined American-Canadian Special Forces unit, looking for adventure. There were a lot of volunteers, and he didn't get chosen, so he joined the regular Army instead. Later, when he was deployed in Italy, and after there had been a lot of casualties in the Special Forces, they asked for volunteers again. Stan knew the story but, still looking for adventure, he volunteered again, and was selected.

The German nickname for his Special Forces unit was the Black Devils. They would sneak quietly behind enemy lines in the dark of night to blow up stuff, and slip away unseen. Stan said they would do things like drop hand-grenades down the barrel of a big cannon to damage the rifling and make the big gun worthless. They would wreck tanks and jeeps, and steal anything that wasn't nailed down. They would even sneak into the enemy barracks at night while the German soldiers were there, sleeping, and steal their food and wine. When they got back to home-base, one particular Captain would confiscate all of the liquor, and set up his own small tavern to sell it back to them. That particular Captain survived the war and went on to a very successful career as a banker.

When the medic for the Black Devils was killed in action, Stan immediately volunteered to take his place. He traded in his heavy backpack filled with lead bullets and guns for a much lighter one full of bandages and gauze. When I asked him how he survived, he said simply "I kept my head down." Stan has many interesting stories about the Black Devils, and he will gladly agree to share them with any respectable audience, at no charge.

Continued on page 6

After the war, Stan got his first ham radio license in Canada. This required a 10 WPM Morse code test, plus also drawing out the complete schematic of a receiver and a transmitter from memory, and then answering questions about it, explaining the purpose and function of every tube and component.

Stan's current ham radio station includes multiple separate HF radios, one for almost every different band, each radio with its own separate antenna-tuner and antenna, including a beam antenna and a collection of long-wires. His favorite receiver is the tube-powered Yaesu FT-101EE, which he says has the best audio among his radios. He doesn't spend as much time on ham radio as he used to. Stan says a lot of the guys on ham radio just seem to talk too darn fast these days, which makes them hard to understand sometimes. He used to check-in to some of the nets, but a lot of them have so many members that it tends to be a lot of listening with not much chance to talk. He still occasionally enjoys firing up one of the radios and calling CQ, but not as much as in years past. He wishes there was more local traffic on two-meters, although he does enjoy the internet-linked Win-system on two-meters.

Stan spent much of his career designing complex mechanical systems. He designed many original prototypes of machines that were later manufactured in mass-production. He still does welding, machining, mechanical system design, and fabrication of custom equipment in his own very well-equipped workshop, and he occasionally creates new metal sculptures to add to the amazingly creative and whimsical collection of original metal art that adorns his yard and property. Although he admits he is not an early riser, at 90 years old, Stan still works seven days a week, and says he has no plans to retire.

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Article by
Michael Favor-N6FAV

WHO WAS HIRAM PERCY MAXIM?

Undoubtedly there are very few Amateur Radio buffs who are not aware of Hiram Percy Maxim and his enormous contributions to Amateur Radio; however, for those few who may not have his history, this is a very brief recap of the activities and contributions to the world of this most remarkable individual.

Hiram Percy Maxim was an engineer, scientist, inventor, author, whose endeavors left significant impact on all his many fields of interest, just a few of which included automotive design and development, aviation, acoustics and sound abatement. Maxim exhibited unbounded energy, intelligence, inventiveness in all his endeavors as well as in his hobbies - which were many. He particularly enjoyed aviation, was a pioneering glider enthusiast, and passionate about wireless radio.

At age 40 HPM turned his boundless enthusiasm to radiotelegraph. He learned radiotelegraph code, and built one of the first radiotelegraph stations in Hartford, Connecticut. At that time the signal range of the most powerful of the stations was restricted to communication of about 100 miles. The solution was to organize stations to relay messages, as intermediate amateur stations could receive and then retransmit messages across the continent. Maxim recognized that what was needed was an organization that would pull together the amateurs into a strong, self reliant group. He presented his solution to the Radio Club of Hartford in April, 1914 and thus was created a relay organiza-

Hiram presided over this organization for many years, leading to its ultimate stature as the national organization it is today - ARRL.

Maxim's accomplishments and patents are too numerous to list in this brief article, but among them were such achievements as "The Maxim Silencer", a firearms noise suppressor; a muffler exhaust system for gasoline engines; he created and built the first engine driven tricycle; he pioneered a gasoline powered engine & automobile, which became the Columbia Gasoline Carriage, one of the first of its kind manufactured in the world. He was instrumental in opening short-wave and ultra-shortwave radio to amateur radio operators. He authored several books, one of which was the basis for the movie, "So Goes My Love". He founded the Amateur Cinema League in 1926. One of his last books "*Life's Place in the Cosmos*," an overview of contemporary science that surmised life existed outside of earth.

Truly, a man of the ages!



Hiram Percy Maxim:
Born: Sept 2, 1869
Died: February 17, 1936

Below From ARRL



This past year, thousands of ARRL members traveled from far and near to attend the ARRL National Centennial Convention in Hartford, Connecticut. On the top of the “to-do” list for many was to visit ARRL Headquarters in nearby Newington, including-of course– the *Hiram Percy Maxim Memorial Station*.

W1AW, the World’s Most Revered Call Sign

This distinctive brick building holds a monumental place in Amateur Radio history. In his lifetime, Hiram Percy Maxim was a formidable force. An inventor, innovator, and visionary, Mr. Maxim shared his many talents with the world. The ARRL owes its very existence to his leadership and guidance. When he passed away unexpectedly in 1936, “HPM” left behind an organization to support and inspire generations of passionate, committed radio enthusiasts—an organization that has lasted 100 years and continues to flourish today because it is true to its mission.

HPM never saw the completion of the station that bears his name; the project to acquire land and build the station began shortly after his death. Today, W1AW is one of the most sought-after contacts for amateurs throughout the world. Whether you had the honor to man one of the three operating studios inside the station, or completed one of the 75,000 QSOs made with W1AW during the ARRL Centennial QSO Party, the lure of this extraordinary station cannot be denied.

W1AW is more than a special QSO. Inside are banks of modern equipment for transmitting bulletins and code practice on eight bands—SSB, CW, FM, and digital. Voice Bulletins are read live and transmitted several days throughout the week. During natural disasters and other emergencies, ARRL staff and volunteers are at W1AW to assist net operations, and coordinate with national partners and disaster responders.

Sitting side-by-side with state of the art equipment are unique, Amateur Radio artifacts— HPM’s very own rotary spark gap transmitter, “Old Betsy,” and his personal roll-top desk, along with many early radios, and an early post-World War II 80 meter 1kW transmitter.

Honoring the Spirit of HPM

Over the years, W1AW has served—and continues to serve—as the flagship station for Amateur Radio. While this station uses the latest available Amateur Radio technology—just as HPM did in his day - it still commemorates “The Old Man” himself and the early days of radio.

The W1AW Endowment was created to help fund the needs of this celebrated station and the services it provides to radio enthusiasts and the Amateur Radio community at large. From Building renovations to keep this historic structure sound, to updating and maintaining equipment, the list is long.

Funds drawn from the W1AW Endowment provide a reliable –and necessary–source of financial revenue for repairs and updates to the Maxim Memorial Station. To keep the endowment growing at a rate capable of sustaining these renovations and equipment replacement, we must ask you, our members, to contribute this important fund.

Please show your support of W1AW and its significance in Amateur Radio across the country and around the world. And the next time you visit ARRL or hear “Whiskey One Alfa Whiskey” on the air, you’ll know that you’ve honored one of the most extraordinary men in the history of Amateur Radio and kept W1AW in service.

David Sumner, K1ZZ

ARRL Chief Executive Officer and W1AW Trustee

Miscellaneous Radio

Coding and Ham Radio

A (7, 4, 3) Hamming Code Decoder

We've come half-way to a working Forward Error Correction system ... we know how to generate the code words using a little slice of linear algebra, and we have a block diagram of a system that will generate those 7-bit code words from an incoming stream of data bits, 4 at a time. Now, all we need is some mechanism for receiving the 7-bit code words [over the radio perhaps], and reconstructing the original 4-bit data word. And, assuming that only one bit error occurs in any 7-bit block, we need a method to determine which bit that is.

Let's start with **G**, the generator matrix for our code. It has 7 rows, so the code word vectors it generates when I multiply it by the 4-bit data vectors will have 7 bits each. Now, let's temporarily remove rows 1, 2, and 4 so we end up with a square 4x4 matrix:

$$\begin{bmatrix} 1 & 1 & 0 & 1 \\ 1 & 0 & 1 & 1 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

This matrix has 4 columns so I can multiply it by a 4-bit data vector, and it has 4 rows so it will produce a 4-bit vector. In fact, the result vector will be an exact copy of the data vector. Since you know how to multiply a matrix by a vector in binary, it's easy to verify this. A matrix like this has a name ... it's an "identity matrix" and its claim to fame is that it reproduces whatever vector you multiply it by. It's exactly the same as multiplying a number by "1" in ordinary arithmetic, you get the same number. While this may seem useless information, it actually isn't.

What all this shuffling means is that those four rows of **G** simply reproduce our 4-bit data vectors in the 7-bit code words. Look at the table of code words vs data words. All 16 valid code words reproduce the 4-bit data block in bit positions 3, 5, 6, 7. The remaining 3 rows, the ones we pulled out of **G**, are the parity bits, and you'll notice that they are the only rows with more than one 1-bit. In fact, all three of them have exactly three 1-bits. Row 1 provides even parity for rows 3, 5, and 7. Row 2 does it for 3, 6, and 7, and Row 4 does it for rows 5, 6, and 7. Each row is covered by two of the three parity rows. For a simple code like our example, I can figure out **G** just by inspection – start with an 4 x 4 identity matrix and add 3 rows of parity bits such that each data row is covered by two of them. It's a bit like Sudoku. For more complex codes, I can call in the Math Dudes and they'll apply some additional linear algebra and come up with **G** for me.

OK, so far so good. At the receiver, we'll be receiving a stream of 7-bit code words and we want to extract from them the original 4-bit blocks. And, so long as no more than one error bit per 7-bit code word occurred in transmission, we want that error corrected.

Now, in binary, there are only two kinds of errors that can occur ... a "1" becomes a "0", or vice versa. So, if I had some way to determine which bit was switched, I can fix it just by inverting that bit, another big advantage of binary codes. A fundamental part of mathematics is the fact that for every operation you can perform on numbers, there is another operation that will undo it.* If I add two numbers, the undo is subtraction. If I multiply two numbers, the undo is division. This is true in linear algebra too.

Here's a 7x3 matrix, which everyone denotes by **H** which you can think of as the "undo" for multiplying the generator matrix, **G**, by each 4-bit data block at the encoder. It is directly related to **G**, and if you have **G**, you can get **H**. Since it has 7 columns, I can multiply it by the received 7-bit vector. Since it has 3 rows, the result will be a 3-bit vector. Like **G**, **H** has a pattern, each of the rows has exactly four 1-bits. "And that helps, how?"

$$\begin{bmatrix} 1 & 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 1 & 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 & 1 & 1 \end{bmatrix}$$

4 bits of the 7-bit codeword are simply the original 4-bit data block we encoded ... if no errors occurred ... and if we consider the 3-bit result of multiplying **H** by the received 7 bits to be a 3-bit binary number, and if it is zero, no errors occurred. There are 7 other possible combinations for that 3-bit result, 001, 010, 011, ... 111, and here's the cool part! That binary value is the bit number of the 7-bit received codeword that is in error, provided only one error occurred in transmission! ☺ I just invert that particular bit and I've corrected the error. Now, that 7-bit received vector contains my 4-bit data block and it also contains the three additional parity bits and the error could have occurred in one of them. I don't care about them but inverting one does nothing so I keep the procedure simple ... "Invert the bit pointed to by the 3-bit result, and extract bits 3, 5, 6, and 7."

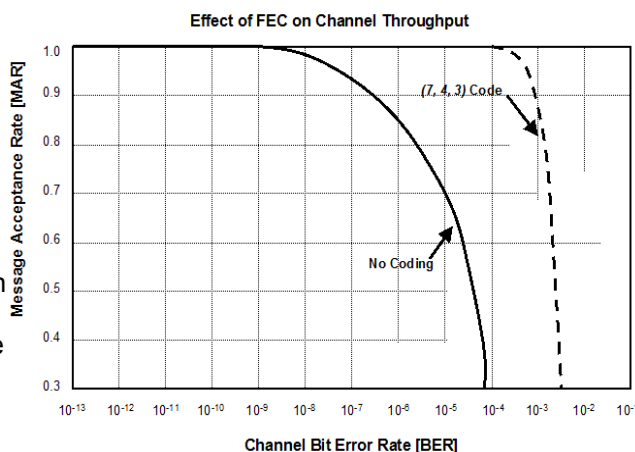
* Although there's no guarantee that the "undo" will be as easy as the "do" was. ☹ If you remember, this is the basis for asymmetric cryptosystems.

That result from multiplying **H** by my 7-bit received code vector is called the “syndrome,” I have no idea why, but in binary codes, it either points to the error bit, or it is unique to the error vector and you can use it to look ERRV up in a table. There are non-binary codes, the somewhat new digital modes JT65 and WSJT uses one class of them, and they are significantly more complex, and one reason is that you not only need to know the character block that is in error but you also need to know what value it should have since there are more than two values.

Like the encoder, I could decode with a table lookup. There are 128 possible 7-bit codewords, 16 of which are valid and 112 of which are not. I could have a table with 128 entries, each corresponding to one of the 128 combinations. The entries for the 16 valid codewords would contain zeroes. All the other entries would contain bit combinations that will transform the invalid codeword to it's nearest valid neighbor. If more than one bit was in error, the nearest valid neighbor in n -space will be the wrong one. That's how it goes in FEC. This will work, and like the encoder, for simple codes like our example, it works great. Memory is dirt cheap, we're only dealing with 128 possible codewords, and microprocessors and PIC's can do it in the blink of an eye. But, for more powerful [and thus more complex] codes, it rapidly becomes unwieldy. The method described above works for every binary code that exists.

In general, bit error rate is inversely proportional to channel signal to noise ratio [SNR]. That is, as SNR decreases [signal gets weaker or noise gets stronger or both], the BER will increase, moving to the right on the horizontal axis in the chart. Exactly how they're related depends on the modulation technique, the data rate, the bandwidth of the signal, and the bandwidth of the radio receiver. But, regardless, as SNR goes down, BER goes up.

In the graph for the no coding case, the MAR starts to drop [i.e. I begin losing messages when the BER is at about 10^{-9} or so. Let's say that corresponds to a channel SNR of 12dB, or a signal that is 12dB above the noise. If the SNR goes lower, the BER will go up and I'll begin having communications failures.



For the coded case, the MAR holds steady at 1.0 until the BER is at 10^{-4} , which corresponds to a much lower SNR, let's just say 4dB. Consequently, we can successfully communicate on a much lower quality channel ... 8dB lower quality, in fact. That 8dB is termed “Coding Gain” because it represents 8dB in terms of radio channel quality. We could have used an 8dB better antenna, we could have transmitted with 8dB more power, or we could do neither and obtain the gain from coding. It's an 8dB difference regardless, so, coding gain, like other gain, is measured in dB. And, it is hugely significant in communications with far-away spacecraft.

I mentioned earlier that the dashed curve isn't really for our (7, 4, 3) Hamming code, numbers don't matter as much here as the shape of the two curves. The vertical axis [MAR] goes down to 0.3 ... only 3 out of every 10 messages are arriving correct. Had I taken it all the way to zero [no messages are arriving correct], the two curves would be very close together, which is another fundamental characteristic of FEC. Coding will delay the degradation of the MAR at higher BER's [i.e. lower SNR's], but it doesn't change very much the point where nothing gets through

And a little coding trivia: The Hamming codes ($n, k, 3$) [a countable infinity of them] will all correct 1 bit errors per block. Every possible n and k , all the Hamming codes have $d=3$. They are members of the class of Binary Linear Cyclic Close-Packed [BLCCP] block codes. We know they're binary, they're linear because if you add any number of codewords [modulo 2, binary clock arithmetic], you'll get another codeword, they're cyclic because if you shift any code word any number of bits, left or right [end-around shift], you'll get another code word, and every codeword corresponds to one and only one data word. Most binary block codes do not have all of these properties.

In fact, there are no BLCCP codes that will correct 2 errors per block, and there is exactly one such code that will correct 3 errors per block – it's name is the (23, 12, 7) Golay code. And stranger still, there are no BLCCP block codes with d greater than 7. The dashed curve in the graph above is actually data for the one and only 3-bit Golay code.

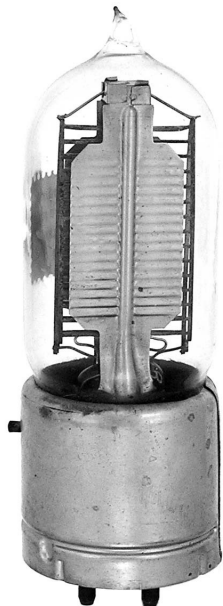
73, and we're just about done with all this drivél,.....Fred Jensen-K6DGW

(The above article was published in March 2014 in the Sierra Signal Newsletter, Sierra Foothills Amateur Radio Club, whose Editor, Barbara Anderson, graciously consented to this reprint. The concluding article by K6DGW – will be in our June issue. Dj)

TUBES OF THE MONTH-EARLY RECEIVING TUBES

VT-1

The VT-1 is a triode developed in WW1 by Western Electric for use as a detector.



Length = 4.25" Diameter = 2 2/5"
 Max voltage = 60
 Max current = 2 ma
 Fil voltage = 2.5
 Fil current = 1.1 amp

[GOTO INDEX](#)



N6JV

Early Receiving tubes

PREZ SAYS continued:

June is Field Day month. We will be back at Platt Mountain. Gene Wright is in charge of band team assignment. If you have a specific want, call him. I will be working 80M voice. Dale has mentioned digital and several other have some interest. We will need support for logging although we will have the computer program. There will be a BBQ on Saturday night with Tom Rider cooking. Balance of the meal will be pot luck. Watch for additional info. We will be composing radiograms at the June meeting to be handled at Field Day.

Until I need a special bulletin or this month's meeting. Watch out for thunder-boomers.



Anna Horn—KG6ZOA
 President, GEARS

Wildflower bikers photo—River Road -
 Courtesy of Michael Favor—N6FAV

The GEARS Newsletter Staff:**Editor and Publisher**.....Dorothy Post**Printing & Distribution** snail mail: Evelyn Weir**Website**...Stephen McDermott W6AKF

The Radiator is a monthly publication of the Golden Empire Amateur Radio Society (GEARS). It is the policy of the Editor to publish all material submitted by the membership provided such material is in good taste, relevant to amateur radio, of interest to GEARS members, and space is available. Please send all submissions to the Editor – Dorothy Post by the last day of the month through the following medium: E-mail: dj@posthouse.us

Club Officers: (Board of Directors)

PresidentAnna Horn –KG6ZOA

Vice President..... Scott Petersen-KE6VUS

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Treasurer.....Rick Hubbard-KI6VOS

Past PresidentGene Wright-WA6ZRT

Director..... Tom Rider-W6JS

Director.....Stephen McDermott W6AKF

Director.....Stephen Wolske-KF6HSS

Club Meetings**General Meeting** Third Friday 7:00 PM**Board Meeting** Third Friday 6:00 PM**GEARS Club Net****Tuesdays** 8:00 PM 146.850 MHz-PL 110.9

GARS Club Net: Monday, 19:30 147.105+Mhz PL 110.0

Sacramento Valley Traffic Net**Nightly** 9:00 PM 146.850 MHz-PL 110.9**ARES Nets:****Butte** Mondays 20:00 146.850 MHz-PL 110.9**Yuba Sutter** Thursdays 19:00 146.085+MHz PL 127.3**Glenn** Thursday 19:30 147.105 MHz +PL 100.0**Other Nets:**

Sac Valley Section Net—7:00 PM 2nd Wed of the month 146.085 MHz+PL 127.3

440 Wed. Night 8:00 PM Wednesday 440.650 MHz**Golden Bear** 7:00 PM Daily 3975 kHz**Willie Net** 8:00 PM Mondays 1930 kHz**Western Public Service System (WPSS)**

Winter 5:00 – 7:30 PM 3952 kHz

Summer 6:00 – 8:30 PM 3952 kHz

ARISS (International Space Station) Uplink 144.490 MHz Downlink 145.800 MHz

Hope-1 satellite: all uplinks are in 145Mhz band:

All downlinks are in 435Mhz band

...California Traffic Net: 3906 KHz nightly @6:00 pm

For traffic listing & @6:30 p.m. for roll call.

From Don Wirth-kc6uis OARS member:**Thank you Don****Dorothy,**

I would like to enhance Don Keith's excellent article by saying that the American Legion is alive and well on 40m, 7.278 LSB every Sunday at 1300 PT. We are usually completed by 1320. Our net has been active for over 20 years and have check-ins from San Diego to Washington State.

We would love to hear from your members. Being an American Legion member is not a requirement. Join us as a guest anytime or let me know that you would like to be put on the regular call roster.

73

Bob Wirth (kc6uis)**Net Manager****California American Legion Radio Service (CALARS)****GARS member****Email:** bobwirth@yahoo.com**Phone:** 530-968-5212

COSPAS-SARSAT (SARSAT is an acronym for "Search and Rescue Satellite Aided Tracking"). These satellites "fix" on your location using a Doppler Shift method and relay your information to the AFRCC (Air Force Rescue Coordination Center) in the US.

SEND devices are GPS-based Satellite messenger devices that rely on either of 2 commercial satellite networks—Iridium or Globalstar. Emergency calls using either network are routed to the privately run GEOS International Emergency Response Coordination Center headquartered near Houston, Texas. A subscription fee is required to use a satellite messenger.

Keep in mind that it's always a good idea to have a visual and/or audible distress signal such as a signal mirror, whistle or strobe light to help catch search and rescue's attention when they get close.1

1.1. <http://www.rei.com/learn/expertadvice/personal-locator-beacons.html>

From Valley Ham News

Sunday, June 7, 2015 August 3, 2015	2:00 p.m.	VEC—Exams	Butte Co. Search & Rescue Building 2591 Morrow Lane, Chico	Tom Rider
Wednesday May 13, 2015	Board-6:00 p.m. General Meeting 7:00 .	GARS-Glenn Glenn Amateur Radio Society General Meeting, & Amateur Radio Emergency Services	Lutheran Church Hall: 565 Main Street Artois	Albert Leyva
Friday, May 8, 2015		OARS Oroville Amateur Radio Society General Meeting	St Paul's Church Parrish Hall 1430 Pine Street Oroville	John Hunt 530 589 4734
Friday May 15, 2015	Board-6:00 p.m. General Meeting 7:00 Doors open 5:30 p.m. .	GEARS Golden Empire Amateur Radio Society General Meeting/Elections	Butte County Search and Rescue Building 2591 Morrow Lane Chico	Anna Horn -kg6zoa 530-877-5939

America's quiet warriors are the legion of ham radio operators, 700,000 of them, who are always at ready for backup duty in emergencies – amateur, unpaid, uncelebrated, civilian radio operators, during and after floods and fires and tornadoes. After the 9/11 attacks, hams were indispensable in reuniting friends and families. Most recently it was they who expedited the search for debris after the disaster to the space shuttle Columbia, and right now, at this moment, they are involved in homeland security to a greater degree than you would want me to make public. — Paul Harvey News and Comment, ABC Radio, March 19, 2003



Paul Harvey, 1918-2009